REFLEXIVITY IN PERSIAN*

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1. Introduction

Persian reflexive elements show distinct properties not shared by their counterparts in other languages. The Persian reflexive element *xod* 'self' can be used monomorphemically, or a pronominal clitic (varying with number and person) can attach to it (*xod-PC* henceforth). Regarding conditions A and B of the Standard Binding Theory (see (1) below) unlike the Germanic and East Asian languages, in Persian the monomorphemic anaphor *xod* is subject to Condition A and the poly-morphemic *xod-PC* can be bound both locally and long distance (not subject to Condition A).

The Standard Binding Theory (Chomsky 1981: 188): ¹
 Condition A: An anaphor is bound in its governing category.
 Condition B: A pronominal is free in its governing category.

The analysis of *xod* which must be locally bound, and the analysis of *xod*-*PC* that need not be locally bound are the main issues addressed in this paper. First, I briefly elaborate on two main types of reflexive elements and their features in different languages. Then, I compare and contrast Persian reflexive elements with their counterparts in Germanic and East Asian languages. These two forms are tested for their anaphoric nature through quantifier antecedents and VP ellipsis. Also, through the Minimalist account of feature checking at LF (Chomsky 1995) and an uninterpretable [Refl] feature, it will be proposed that the presence or absence of φ features determines the realm of LF movement of the reflexive element in Persian causing the differences between the two reflexive forms. Finally, considering tokens of *xod-PC* with non-c-commanding antecedents, it will be argued that long-distance bound cases of this element can also be viewed as emphatic pronouns versus reflexive pronouns.

2. Two types of reflexive pronouns and their main features

Reflexive pronouns are generally divided into two groups: simple expressions or SE anaphors (such as: Dutch *zich*, Norwegian *seg*, Italian *se*, Korean *caki*, etc.) and complex expressions or SELF anaphors (such as: English *himself*, Dutch *zichzelf*, Norwegian *seg selv*, etc.) (Reinhart and Reuland 1993). Considering their behavior in different

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¹ Condition C is not the focus of this study.

Condition C: An R-expressions are free.

languages, it has been observed that while complex expressions are universally local, the long distance anaphors in both Germanic languages (e.g. Dutch *zich* and Norwegian *seg*) and East Asian languages (e.g. Chinese *ziji*) are mono-morphemic (simplex) (Faltz 1977; Pica, 1987).

SE and SELF anaphors have different grammatical functions. The reflexivizing function of SELF anaphors can be associated with either "the pronoun determiner embedded in the SELF anaphor" or "SELF as an operator turning a transitive predicate into an intransitive one" (Reinhart and Reuland 1993: 659). The SE anaphors, quite like pronouns, do not possess this reflexivizing feature. In fact, the SE anaphors can get the same function as pronouns acting as arguments, provided that they undergo some operation to get φ features. Thus, SE anaphors have a similar structure to pronouns except for their lack of φ features. In other words, anaphors are referentially defective elements (Chomsky 1986; Keenan 1988) and cannot act by themselves as independent arguments. Considering these similarities between SE anaphors and pronouns, Everaert (1986) calls them pronominal elements. Reinhart and Reuland (1989, 1991) state that the SE anaphors get their φ features through moving (adjoining) to T position where they can get their features through agreement with the subject. So the trace of the anaphor which gets φ features from the combination of SE+T can act as an argument.²

3. Persian reflexives and their behavior

Persian has two types of anaphors; the reflexive *xod* 'self' and the reciprocal *hamdige* 'each other' (Karimi 2005). The reflexive *xod* has two possible forms. It can be used as a mono-morphemic reflexive pronoun or it can be attached to a pronominal clitic (*xod-PC*). The former is used more in formal and written context and the latter in colloquial and informal language (Mahootian and Gebhardt 1997). Thus, Persian has both SE (*xod*) and SELF (*xod-PC*) reflexive forms. Regarding Conditions A and B of the standard Binding Theory (Chomsky 1981), in a simplex sentence containing two co-arguments, as in (2) below, both *xod* and *xod-PC* can only be co-indexed with the subject of the sentence (i.e. locally bound; Condition A).³ However, Persian pronouns (e.g. \bar{u} '(s)he') are totally in line with Condition B and must be free in their local binding domain.

² As proposed by Reinhart and Reuland (1993: 662), a predicate can be either intrinsically or extrinsically reflexive marked. By intrinsically reflexive, it means that the head of the predicate (e.g. verb) is marked reflexive in the lexicon (with or without overt morphological mark on it). Reflexivization in such cases is viewed as "an operation on the verb's theta grid, absorbing one of its theta roles". And by extrinsically reflexive, it means that if the predicate is not intrinsically reflexive, it can be reflexivized by one of its arguments which is reflexive marked with a SELF anaphor. Reinhart and Reuland (1993: 678) propose two necessary conditions on a predicate to be reflexive:

Condition A: A reflexive-marked syntactic predicate is reflexive.

Condition B: A reflexive semantic predicate is reflexive-marked.

According to their definition, being reflexive means that the predicate has (at least) two co-indexed arguments and being reflexive marked means that the predicate is lexically (intrinsically) reflexive or one of its arguments is a SELF anaphor.

³ It should be pointed out that xod-PC in rare cases, providing enough context, can get an antecedent out of the sentence.

(2) bahār_i xod_{i/*j}/xod-eš_{i/?*j} /ū_{*i/j} -ro moarefi kard.⁴ Bahar self /self-PC.3sg/(s)he -OM introduce did (lit.) 'Bahar introduced herself.'

In case of complex sentences with the reflexive in the embedded clause, as in (3), the only difference is that *xod-PC* can cause ambiguity referring to either subject of the embedded clause or subject of the matrix clause. Again the pronoun \bar{u} '(s)he' is subject to Condition B (i.e. cannot be bound locally).⁵

(3) sohrābi goft [ke bahārj xod *i/j /xod-eši/j / ūi/*j -ro dūst dāre]. Sohrab say.3sg.past that Bahar self /self-PC.3sg/(s)he -OM like have (lit.) 'Sohrab said that Bahar likes self.'

All in all, it seems that in Persian the SE anaphor *xod* can only be locally bound (Condition A), whereas the SELF anaphor *xod-PC* is not subject to Conditions A or B of the Standard Binding Theory. However, Persian pronouns, as expected by Condition B, must be free in their local binding domain.

Moreover, reflexive elements in some languages (e.g. Korean) show Weak Subject Orientation which refers to the fact that although a subject antecedent is preferred over the object, reflexives can also have object antecedents (Sohng 2004). As in (4), Persian SELF anaphor *xod-PC* seems to manifests this feature, too.

(4) sohrābi be ārašj goft [ke bahārk xod-eš i/j/k -ro dūst dāre]. Sohrab to Arash say.3sg.past that Bahar self-PC.3sg -OM like have (lit.) 'Sohrabi told Arashj that Bahark likes selfi/j/k.'

In this sentence, other than either the subject of the main clause *sohrāb* or the subject of the embedded clause *bahār*, *xod-PC* can also have object of the main clause $\bar{a}ra\bar{s}$ as a possible antecedent.

In the next section I will test both Persian reflexive forms to see whether they show bound variable behaviour. Quantifier antecedents and VP ellipsis are two tests I will use here.

4. Diagnostics for anaphors

4.1 Quantifier antecedent

Bound variables are expected to have sloppy reading (opposed to referential reading) in cases where they have quantifiers as their antecedents. As shown in (5) below, in the

⁴ OM in the Persian example sentences stands for 'Object Marker' particle $r\bar{a}$ (*ro* or *o* in spoken form) which follows [+specific] direct objects in Persian (Karimi 2001).

⁵ It is worth mentioning that there are two possible (surface) word orders in Persian; SOV for phrasal objects and SVO for clausal objects (refer to Karimi 1989, 1994; Darzi 1996; Moinzadeh 2001 for more on Persian word order).

presence of a quantifier antecedent (e.g. *har-kasi* 'every-body') both Persian reflexive forms have sloppy reading which classifies them as bound variables. However, in such cases, there is a slight chance of *xod-PC*, depending on the context, representing referential reading (i.e. *xod-PC* referring to a single identity).

(5) har-kasii xodi/xod-eši -ro dūst dāre. Every-body self/self-PC.3sg -OM like have (lit.) 'Everybody likes self. (sloppy reading).'
∀ x [x likes x] =John likes John, Bill likes Bill, ...

4.2 VP ellipsis

Another test to determine that the reflexive element is a bound variable is VP ellipsis. Han and Storoshenko (2012: 773) used this test to show that Korean *caki* "should be interpreted through variable binding, and not through co-reference with its antecedent". They argue that because after VP ellipsis in the Korean sentences containing *caki*, only the sloppy reading is possible and the strict reading is not interpreted, *caki* is a bound variable and not a free co-referential pronoun. Following Han and Storoshenko's proposal and considering the sloppy reading as the preferred interpretation of VP-elided structures such as (6), we can conclude that both reflexive forms are bound variables in Persian. However, providing sufficient context, *xod-PC* can also get a strict reading which is not the preferred reading.

(6) sohrābi xodi/xod-eši -ro dūst dāre, vali bahārj xodj/xod-ešj ro dūst
Sohrab self/self-PC.3sg -OM like have, but Bahar self/self-PC.3sg -OM like na-dare.
neg-have
(lit.) 'Sohrab likes himself, but Bahar doesn't.'
=Sohrab likes Sohrab, but Bahar doesn't like Bahar. (sloppy reading) Bound Variable (preferred)
=Sohrab likes Sohrab, but Bahar doesn't like Sohrab. (strict reading; for *xod-PC*) Co-reference

Thus, both tests (quantifier antecedent and VP ellipsis) confirm that both reflexive forms in Persian can be considered as bound variables (hence anaphors), although *xod-PC* seems to behave somehow different from SE form *xod*. However, in some cases such as (7) below, Persian *xod-PC* does not seem to be in line with a general feature of anaphors which is being c-commanded by their antecedents.

(7) man ketāb-i [_{RC} ke bahāri newešte būd] -ro be xod-eši dād-am.⁶
 I book-DEM that Bahar written was -OM to self-PC.3sg gave-1sg (lit.) '*I gave the book [that Bahari had written] to herselfi.'

⁶ DEM in this sentence stands for demonstrative -*i* sometimes connected to head DPs in Persian

In this sentence, xod-PC gets subject of the embedded clause $bah\bar{a}r$ as its antecedent, although not being c-commanded by it. Such cases question the anaphoric nature of xod-PC in Persian.

In the rest of the paper, first I will discuss differences in the behaviors of the two reflexive forms in Persian through LF (i.e. covert) raising and its possible motivations and then I will come back to the cases of *xod-PC* getting non-c-commanding antecedents, contrasting the anaphoric and emphatic use of the same form.

5. LF raising

As mentioned before, reflexive pronouns are referentially deficient (Chomsky 1986; Keenan 1988) and cannot be used independently. Specifically, since they do not possess φ features, they need to get them from an operation during the computation of the structure. SE anaphors are generally believed to get their φ features by adjoining with T node and through agreement with subject, so the anaphor's trace, getting φ features from the SE+T complex, functions as an argument (Reinhart and Reuland 1989, 1991). Reinhart and Reuland (1993) use this to account for the well-accepted idea that SE anaphors are (strong) subject oriented and can be bound only by the subject (Pica 1987; Cole and Sung 1994; among others).⁷

According to Minimalism (Chomsky, 1995), movements motivated by feature checking can occur at LF. Since Condition A of the standard Binding Theory applies at LF, it is believed that the long-distance reflexives undergo steps of movement at LF to reach a local binding relation with their antecedents. To justify this cyclic movement, Kim (1999, as cited in Sohng 2004) proposes that reflexives have a [Refl] feature that must be checked by matching with the uninterpretable feature [Refl] of T which can be optionally selected at the numeration. Considering the minimalist perspective on the feature checking movement at LF, Sohng (2004) assumes that the reflexive element crosses all the intervening heads (e.g. V and v) to reach the T node and check its affixal feature [Refl]. (8b) below which is the tree for (8a) from Sohng (2004: 385) depicts this cyclic movement for the Chinese SE reflexive *ziji*.

 (8) a. Chinese: John gei Tom ziji de hua. John gave Tom self MM painting (lit.) 'John gave Tom self's painting.'

⁷ However, this cannot justify weak subject orientation of these anaphors in some languages (e.g. Korean).

b.



To account for Strong Subject Orientation of Chinese mono-morphemic *ziji*, following Huang and Tang (1991), Sohng (2004, p. 386) proposes that while it lacks inherent φ features, *ziji* acquires these features through Spec-head agreement in TP, and its copy in [Spec, VP] cannot take the object DP as an antecedent and get φ features from it (i.e. no weak Subject Orientation). So in (8) the copy of reflexive element *ziji* in Spec, VP cannot take the object DP *Tom* as an antecedent and get φ features from it. To argue in this case, Sohng (2004) proposes the following condition on antecedence at LF:

(9) "A DP merged to a category that does not host [Refl] can c-command and actually antecede an X^0 reflexive iff the members of that X^0 reflexive's chain have φ features." (Sohng 2004:388).

From this perspective, Sohng (2004) accounts for the Weak Subject Orientation of Korean *caki* 'self'. The idea is that, because *caki* has inherent φ features (i.e. 3rd person), the chain always has φ features and it can be bound by an object as well as subject but Chinese *ziji* does not have φ features so it cannot take non-subject antecedents.

Following the same argument, it seems that the difference between *xod* and *xod-PC* in Persian is quite similar to the difference between Chinese *ziji* and Korean *caki*, respectively. As pointed out before, the pronominal clitic attached to the reflexive element in *xod-PC* determines its φ features. So quite like Korean *caki*, *xod-PC* possesses inherent φ features and does not need to check them via agreement with subject. A clear evidence for this fact is that the pronominal clitic attached to *xod-PC* should always be in agreement with its possible antecedents in person and number. Thus, in (10) below,

because of the clitic *-am* 'sg-1st', the only possible antecedent for the reflexive is the non-subject antecedent *man* 'I'.

(10) bahār be **man** goft [ke modir xod-**am** -ro entexāb karde]. Bahar to I say.3sg.past that manager self-PC.1sg -OM select done (lit.) 'Bahar told me that the manager has selected me (myself).'

As shown in the tree (11b)⁸ (for sentence (11a)), the reflexive *xod-PC* undergoes covert movement to T at LF, passing through all the intervening head nodes in between. Since checking φ features is not its motivation, I hypothesize that these steps of movement are caused by the [Refl] feature which is going to be checked via Spec, head agreement. This movement happens in local sequences which justifies the long-distance boundedness of this element. Also by this argument we would have reasonable account of the weak subject orientation of *xod-PC* in Persian. According to the condition in (9), the whole chain has φ features, and therefore the spec of the non-[Refl] hosting head gets to be an antecedent (i.e. object of the matrix clause *āraš*).

(11) a. sohrābi be ārašj goft [ke bahārk xod-eš i/j/k -ro dūst dāre]. Sohrab to Arash say.3sg.past that Bahar self-PC.3sg -OM like have (lit.) 'Sohrabi told Arashj that Bahark likes selfi/j/k.'



⁸ The form of tree structures of Persian sentences here (adopted from Toosarvandani 2009) are just to show the movement chain of the reflexive, and are not intended to be a full structural analysis of the sentences.

But the mono-morphemic element *xod* has a different behavior. It is subject to condition A of the Standard Binding Theory and can only be bound locally. This reflexive form does not possess inherent φ features and its person and number features are determined by its antecedent. Again LF movement occurs, but since *xod* does not have inherent φ features, its movement seems to be more for getting φ features than checking [Refl] feature. As shown in the tree (12b), of sentence (12a), after covert movement to the local T and getting φ features via Spec, head agreement with the subject, the reflexive element blocks there and does not move out of the embedded clause. Thus, *xod* is moving only for φ features (and not to check [Refl]) and as soon as it gets them, it is blocked and does not go any further up in the tree.⁹

 (12) a. sohrābi be ārašj goft [ke bahārk xod*i/*j/k -ro dūst dāre]. Sohrab to Arash say.3sg.past that Bahar self -OM like have (lit.) 'Sohrabi told Arashj that Bahark likes self*i/*j/k.'



To sum up, it can be claimed that the difference between *xod* and *xod-PC* in Persian is similar to the difference between Chinese *ziji* and Korean *caki*. The behavior of *xod* can

⁹ If it were moving for [Refl] feature, we would expect it to keep moving and be long-distance bound and show blocking effect, when [Refl] was on the higher T, even though it has already gotten φ features. It is different from Chinese *ziji* which moves for both φ features and [Refl] and shows blocking effect.

be associated to lack of φ features while *xod-PC* inherits these features from the attached pronominal clitic (PC) and moves only for the sake of [Refl] feature.

6. Emphatic *xod-PC* in Persian

As pointed out earlier, *xod-PC* having a non c-commanding antecedent in some cases (as in (10)) casts doubt on its anaphoric nature. To clarify this issue, I should point to another form of *xod* in Persian (seen in (13)) as an emphatic pronoun, not reflexive.

(13) xod-e pādešāh/ū /š sarbāz -ro davat kard.¹⁰ self-EZ king /(s)he/PC.3sg soldier -OM invite did (lit.) 'The king/he himself invited the soldier.'

As shown in this sentence, the emphatic *xod* can be attached to a noun $p\bar{a}des\bar{a}h$ 'king', a pronoun \bar{u} '(s)he', or a pronominal clitic \check{s} '(s)he. This last form turns out to look quite similar to the reflexive *xod-PC* which has been discussed throughout this paper as a manifestation of SELF anaphor in Persian. Thus, it seems that we are dealing with two different versions of *xod-PC* in Persian (i.e. SELF reflexive anaphor and emphatic pronoun). Thus, the non-c-commanded forms of *xod-PC* in structures such as (7), repeated here in (14), which are subject to condition B and can be replaced with a pronoun can be accounted for as cases of emphatic pronous versus reflexive anaphors.

(14) man ketāb-i [RC ke bahāri newešte būd] -ro be xod-eši /ū dād-am.
I book-DEM that Bahar written was -OM to self-PC.3sg /(s)he gave-1sg (lit.) '*I gave the book [that Bahari had written] to herselfi.'

This perspective gives another way to account for the possibility of *xod-PC* being long distance bound. So, in complex sentences such as (3) above, repeated here in (15), when long distance bound, the affixal clitic acts as the argument of the sentence and the element *xod* is only an emphatic element attached to it to emphasize the identity of the clitic (i.e. *xod-PC* subject to Condition B). When locally bound by a co-argument antecedent (i.e. subject to condition A and not B), *xod-PC* is an anaphor.

(15) sohrābj goft [ke bahāri xod i/*j /xod-eš i/j /ū*i/j -ro dūst dāre]. Sohrab say.3sg.past that Bahar self /self-PC.3sg/(s)he -OM like have (lit.) 'Sohrab said that Bahar likes self.'

A possible way to test whether long-distance xod-PC is emphatic or anaphoric is through VP ellipsis. As in (16), if we take subject of matrix clause, sohrab, as the only antecedent of xod-PC (i.e. long-distance anaphor), only referential reading would be possible (not

¹⁰ EZ in this example stands for *ezafe* particle which is "an unstressed vowel -*e* (-*ye* after vowels other than -*i*) that links together elements belonging to a single constituent" (Ghomeshi 1997: 729) and nouns to their modifiers and possessors (Taghvaipour 2005).

sloppy reading). Considering this fact, we can claim that it is emphatic pronoun (not anaphor).

(16) sohrābi goft ke bahārj xod-eši -ro dūst dare, vali sārāk xod-eši/*j/*k Sohrab say.3sg.past that Bahar self-PC.3sg -OM like have, but Sara self-PC.3sg -ro dust na-dāre.
-OM like neg-have (lit.) 'Sohrabi said that Baharj likes selfi, but Sarak doesn't like selfi/*j/*k.'
= Sohrab said that [Bahar likes Sohrab, but Sara doesn't like Sohrab]. Strict reading = *Sohrab said that [Bahar likes Sohrab, but Sara doesn't like Bahar/Sara]. Sloppy reading

7. Conclusion

In Persian, the reflexive xod (representing SE anaphors) is subject to Condition A of Standard Binding Theory, and *xod-PC* (as a manifestation of SELF anaphors) is structurally ambiguous (not subject to Conditions A or B and taking a non c-commanding antecedent). In this paper, considering the Minimalist account of feature checking at LF (Chomsky 1995) and the presence of uninterpretable [Refl] feature of the T node (Kim 1999, as cited in Sohng 2004), following Sohng (2004), it was proposed that the presence or lack of φ features determines the realm of LF movement of the reflexive element in Persian. Thus, the lack of φ features motivates xod to raise and as soon as it gets its features, it is blocked and does not go any further up in the tree. However, as the xod-PC inherits φ features from the attached pronominal clitic (PC), it only raises to check [Refl] feature and as this feature can be on any higher clause motivating the cyclic movement, it can move cyclically to all the head nodes above. This justifies its ability to have a nonlocal antecedent and also show weak subject orientation. Moreover, based on the cases of non-c-commanded xod-PC, argued as emphatic pronouns, it is proposed that when longdistance bound, xod-PC could also be viewed as a case of emphatic pronoun versus SELF anaphor.

References

Chomsky, Noam. 1981. Lectures on government and binding. Dordrecht: Foris.

Chomsky, Noam. 1986. Knowledge of language: Its nature, origin, and use. New York: Praeger.

Chomsky, Noam. 1995. The minimalist program. Cambridge, MA: MIT press.

- Cole, Peter, and Li-May Sung. 1994. Head movement and long-distance reflexives. *Linguistic Inquiry* 25(3): 355-406.
- Darzi, Ali. 1996. Word order, NP movements, and opacity conditions in Persian. Doctoral dissertation, University of Illinois at Urbana-Champaign.
- Everaert, Martin. 1986. The syntax of reflexivization. Doctoral dissertation, University of Utrecht.
- Faltz, Leonard M. 1977. Reflexivization: A study in universal syntax. Doctoral dissertation, University of California.

Ghomeshi, Jila. 1997. Non-projecting nouns and the Ezafe construction in Persian. *Natural Language and Linguistic Theory* 15(4): 729-788.

- Han, Chung-hye, and Dennis R. Storoshenko. 2012. Semantic binding of long-distance anaphor caki in Korean. *Language* 88(4): 764-790.
- Huang, C-T. James, and C-C. Jane Tang. 1991. The local nature of the long distance reflexives in Chinese. In *Long-distance anaphora*, ed. Jan Koster and Eric Reuland, 263-282. Cambridge: Cambridge University Press.
- Karimi, Simin. 1989. Aspects of Persian Syntax, Specificity, and the Theory of Grammar. Doctoral dissertation, University of Washington.
- Karimi, Simin. 1994. Word-order variations in contemporary spoken Persian. Persian Studies in North America: 43-73.
- Karimi, Simin. 2001. Persian complex DPs: how mysterious are they? *Canadian Journal of Linguistics* 46: 63-96.
- Karimi, Simin. 2005. A minimalist approach to scrambling: Evidence from Persian (Studies in generative grammar 76). Berlin: Mouton de Gruyter.
- Keenan, Edward. 1988. On semantics and the binding theory. In *Explaining language universals*, ed. John Hawkins, 105–144. Oxford: Blackwell.
- Kim, Yong-Suk. 1999. Choysocwuui caykwisa mwunpep (Minimalist Grammar of Reflexives). Seoul: Hankuk Publishers.
- Mahootian, Shahrzad, and Lewis Gebhardt. 1997. Persian: Descriptive grammars, London: Routledge.
- Moinzadeh, Ahmad. 2001. An antisymmetric, minimalist approach to Persian phrase structure. Doctoral dissertation, University of Ottawa.
- Pica, Pierre. 1987. On the nature of the reflexivization cycle. In *Proceedings of the North East Linguistic Society 17*, ed. Joyce McDonough and Bernadette Plunkett, 483–499. Amherst: GLSA, University of Massachusetts.
- Reinhart, Tanya, and Eric Reuland. 1989. Anaphoric territories. Ms., Tel Aviv University/Groningen University.
- Reinhart, Tanya, and Eric Reuland. 1991. Anaphors and logophors: An argument structure perspective. In *Long-distance anaphora*, ed. Jan Koster and Eric Reuland, 283-321. Cambridge: Cambridge University Press.
- Reinhart, Tanya, and Eric Reuland. 1993. Reflexivity. Linguistic inquiry 24(4): 657-720.
- Sohng, Hong-Ki. 2004. A minimalist analysis of X⁰ reflexivization in Chinese and Korean. *Studies in Generative Grammar* 14(3): 375–96.
- Taghvaipour, Mehran A. 2005. *Persian relative clauses in head-driven phrase structure grammar*. Doctoral dissertation, University of Essex.
- Toosarvandani, Maziar. 2009. Ellipsis in Farsi complex predicates. Syntax 12(1): 60-92.